

1. (Currently Amended) A flywheel energy storage system, comprising:
an energy storage flywheel supported on a bearing system for rotation about a substantially vertical axis inside a container with an internal low friction atmosphere; a motor and a generator for accelerating and decelerating said flywheel for storing and retrieving energy; and
a tilt sensor that detects if the orientation of the axis of rotation of said bearing system for said flywheel is outside a predetermined tolerance from vertical the direction of gravity, and produces a signal to trigger appropriate predetermined corrective actions.
2. (Original) A flywheel energy storage system as described in claim 1, wherein:
said bearing system is comprised of magnetic bearings.
3. (Original) A flywheel energy storage system as described in claim 2 wherein:
said magnetic bearings provide passive radial centering force to said flywheel.
4. (Original) A flywheel energy storage system as described in claim 2 wherein:
said magnetic bearings use active radial control.
5. (Original) A flywheel energy storage system as described in claim 1 wherein:
said bearing system is comprised of a combination of magnetic and mechanical bearings.
6. (Original) A flywheel energy storage system as described in claim 5 wherein:
said magnetic bearings are used to provide axial lift force to the flywheel and said mechanical bearings provide radial centering force.
7. (Previously Amended) A flywheel energy storage system as described in claim 1 wherein:
said tilt sensor detects excessive tilting of said flywheel energy storage system when the axis of rotation of said flywheel is more than 10 degrees from vertical.

8. (Previously Amended) A flywheel energy storage system as described in claim 1 wherein:

said tilt sensor detects excessive tilting of said flywheel energy storage system when the axis of rotation of said flywheel is more than 5 degree from vertical.

9. (Original) A flywheel energy storage system as described in claim 1 wherein:

said tilt sensor includes a mechanical switch.

10. (Original) A flywheel energy storage system as described in claim 9 wherein:

said mechanical switch uses a pendulum.

11. (Previously Amended) A flywheel energy storage system as described in claim 10 wherein:

said tilt sensor includes a pendulum hanging inside an opening in an annular electrical contact;

whereby said pendulum contacts said annular electrical contact and completes an electrical circuit to generate said signal when said flywheel energy storage system tilts beyond said predetermined tolerance from vertical.

12. (Currently Amended) A flywheel energy storage system as described in claim 1 wherein:

said tilt sensor detects whether the orientation of the axis of rotation of said flywheel is inside or outside of tolerance from vertical by detecting the tilt angle of the axis of said bearing system for said flywheel rotation.

13. (Currently Amended) A flywheel energy storage system as described in claim 12 wherein:

detection of the orientation of the axis of rotation of said flywheel being too far from vertical causes an alarm within said flywheel energy storage system.

14. (Currently Amended) A flywheel energy storage system as described in claim 12 wherein:

detection of the orientation of the axis of rotation of said flywheel being too far from vertical causes a remote alarm.

15. (Currently Amended) A flywheel energy storage system as described in claim 12 wherein:

detection of the orientation of the axis of rotation of said flywheel being too far from vertical causes prevention of power application to said motor.

16. (Currently Amended) A flywheel energy storage system as described in claim 12 wherein:

detection of the orientation of the axis of rotation of said flywheel being too far from vertical causes said flywheel energy storage system to discharge.

17-20. (Cancelled)